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(71) Applicant (*for all designated States except US*): HUNTS-MAN ADVANCED MATERIALS (SWITZERLAND) GMBH [CH/CH]; Klybeckstrasse 200, CH-4057 Basel (CH).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): DIAKOUMAKOS, Constantinos, D. [GR/GB]; 12 Crossways House, Anstey Way, Trumpington, Cambridge CB2 2JZ (GB). KOTZEV, Dimiter, Lubomirov [GB/GB]; 21 Carron Close, Corby, Northants NN1 2LB (GB).

(74) Agents: BARUH, Colette et al.; Huntsman (Europe) BVBA, Intellectual Property Department, Everslaan 45, B-3078 Everberg (BE).

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(54) Title: NANOCOMPOSITES BASED ON POLYURETHANE OR POLYURETHANE-EPOXY HYBRID RESINS PREPARED AVOIDING ISOCYANATES

(57) Abstract: A fast curable non-isocyanate-based polyurethane- and polyurethane-epoxy network nanocomposite polymeric compositions are derived upon crosslinking a mixture comprising of natural or modified nano-clay [ionic phyllosilicate] with platelet thickness in the scale of A (~1 nm) and aspect ratio (length/thickness) higher than 10 (nm)] preferably natural or modified montmorillonite with either a monomer(s) or oligomer(s) bearing at least one cyclocarbonate group or a mixture of the latter with an epoxy resin, with a hardener, which is a monomer or oligomer or mixtures therefrom, bearing primary and/or secondary amino groups. The use of the nanoclays reduces the gel time and increases the adhesion of the cured polyurethane and polyurethane/epoxy hybrid and also reduces its water absorption.